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to recall what the reading is of. When the plates have been prepared for publication the figure number is entered in the square opposite the reading. When the cell has been photographed this information is also placed here with the number of the photo-


<u>Lot</u> 507	<u>Slide</u> 6	<u>Box</u> 30	<u>Stain</u> Iron haematoxylin					
<u>Shows</u> spermato cyte I <u>meta.</u>		<u>Thickness</u> 8	<u>Condition</u>					
<u>LOCATIONS.</u>								
<del>184.2</del> <del>48.7</del>								
<del>146.8</del> <del>60.7</del>	1.							
<del>151.3</del> <del>80.6</del>	 13							
<del>180.8</del> <del>90.8</del>								
<del>127.7</del> <del>81.5</del>	2. <u>Photo</u> 56.							

Fig. 2

graph. With these records should the plates be lost or when the original of a figure is to be examined the location on the slide may readily be found.

With the records on these cards before him the investigator has all his data well in hand for the preparation of his paper.

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University of Pennsylvania.

ROBERT T. HANCE.

A MINIATURE DARK ROOM FOR USE WITH THE MICROSCOPE

All microscopists prefer to work either at night or in a darkened room. Using the microscope under such conditions does away with the strain to which both the observing and the unused eye are subjected by the side light—i. e., light coming from sources

other than through the tube. When working in darkened surroundings the effect is that of looking at a picture on a screen. The image appears brighter and objects become clear that under the usual conditions are scarcely visible.

For several years the writer has been trying to devise some method to control the light perfectly and to do this without necessitating the darkening the whole room. It is desirable that any apparatus for the purpose should weigh little and (for ease in carrying from one place to another), it should be simple to take apart. It should, of course, be adaptable to every condition. For further convenience of the worker definite places should be present in such an apparatus for the usual microscopical accessories—pens, pencils, drawing and memorandum cards and lens paper.

The following description is of a miniature dark room for use with the microscope fulfilling these requirements. It was designed and made by the writer last fall and, after a year's use, he has found it to be exceedingly practical in eliminating all the strain that results when the eye is unshielded. In this darkened enclosure the eye not in use is at perfect rest. Moreover for drawing the light may be controlled so that it is possible always to have light of the same intensity directed on the drawing paper.

### *Description*

Figure 1.

A. Base— $\frac{1}{4}$ -inch white pine 12x18 inches with a binder of the same wood across each end to prevent warping.

B. Uprights—dowel sticks 1 inch in diameter cut to 18 inches in length.

C-C'. Rods—common telescoping curtain rods. Each of the rods C' is cut 8 inches from the end that ordinarily would be used to fasten it to the window. C is formed of the remainder, of the part between the ends.

D. Wire—a piece of annealed wire  $\frac{1}{8}$  inch in diameter about 4 $\frac{1}{2}$  feet long bent as shown.

To assemble:—one two inch screw fastens each upright to the base. The upright on the right can be seen to have two angle irons aiding in its support but this is only necessary when the fan is

added. Holes are drilled in both uprights to correspond to the diameter of C which is inserted in them. The rods C' are attached by one end to the tops of the uprights by a screw through the eyelet in the rod. Through the eyelet at the opposite end a small rod is passed as shown to prevent the curtains from slipping off. The wire D is fastened to the outer sides of the uprights by means of a single round head screw passed through each flattened end. All the wood and metal work is painted a dead black.

For many valuable suggestions on the design of the curtains and for the excellence of their construction I am indebted to my mother. (See figure 2).

The curtains suspended from the rods C and C' are in four parts, all overlapping each other and fastening together with spring snaps. They are made of the heaviest grade of black sateen doubled. On the right hand curtain are pockets for pencils and cards. On the left side is a pocket for lens paper. The pocket is provided with a flap to exclude the dust. The upper curtain carried on the wire D is of single thickness. The central curtain is in two parts so that they may be separated to permit light to fall on the drawing board. The left hand curtain of the central set has a rectangle 1 inch wide by 5 inches high cut from the center of the basal portion. Across the top of this aperture is stitched a flap of double thickness,  $3\frac{1}{2}$  inches wide by  $5\frac{1}{2}$  inches in length. To one corner of the loose end of the flap is attached a tape which passes around the tube of the microscope and fastens to the other corner of the flap by means of a spring snap.

With the microscope surrounded by these curtains it is impossible to read the figures on the mechanical stage and so the small light (fig. 1 E) was installed. This can be adjusted by means of sliding rods locked with winged nuts to hang directly over the stage. The lamp arm is attached to the right hand upright by means of a collar made of two pieces of brass stripping fastened on either side of the pillar with a thumb screw. The lamp is a small tungsten bulb set in a porcelain socket. The shade or reflector, shown in the photograph, was taken from an old tubular flash light. A small three-cell pocket battery furnishes the current which is

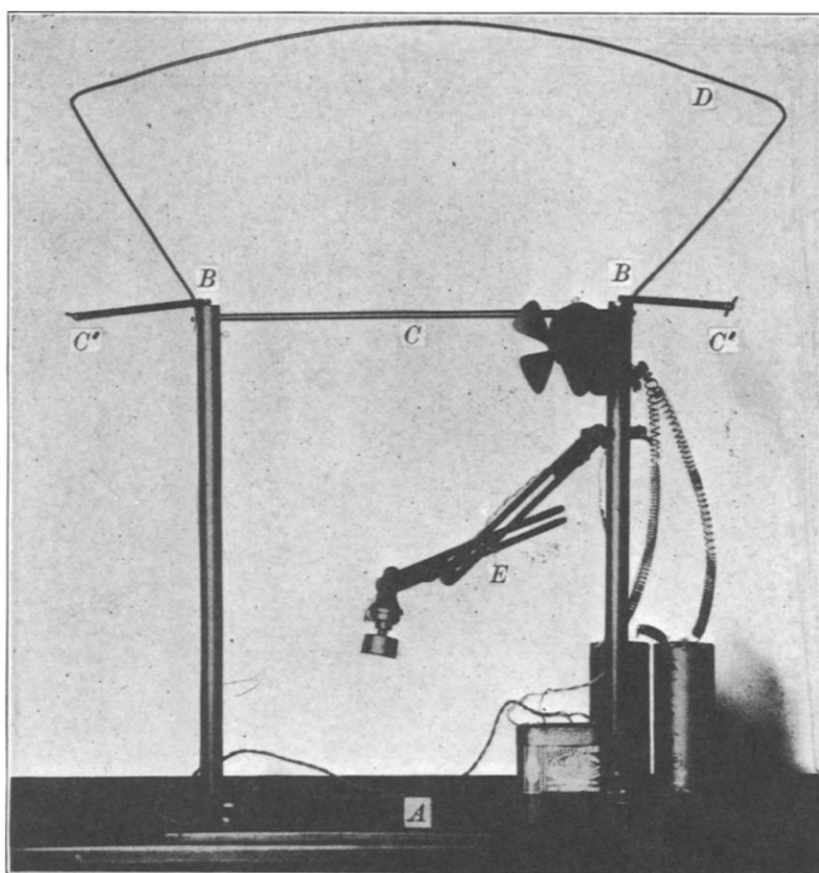


PLATE XII

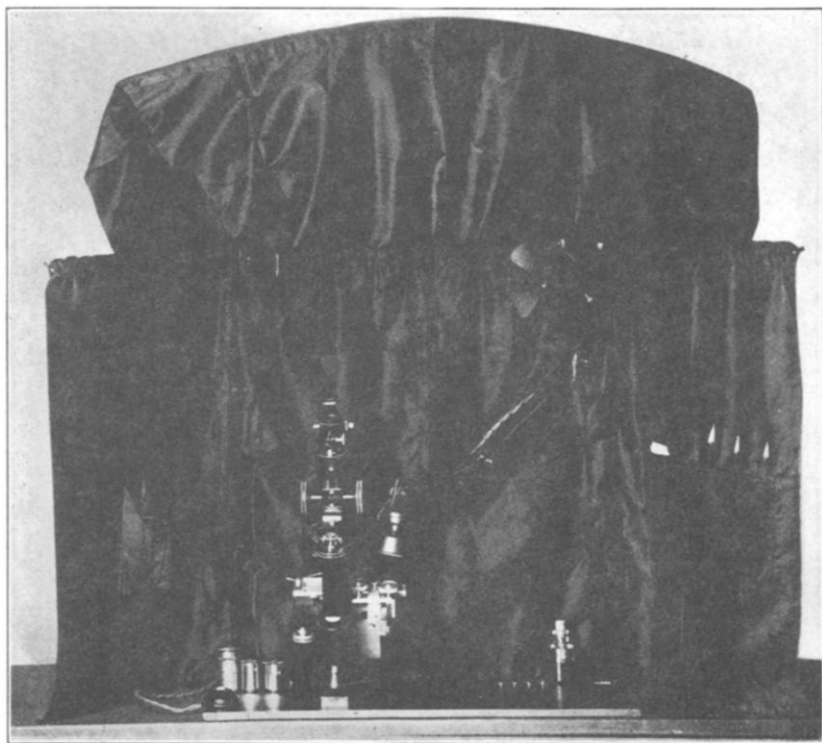


PLATE XIII

controlled by a push button at the left of the microscope. The same battery has lasted for very nearly a year now without visible signs of weakening.

The fan shown in both photographs is a toy motor equipped with a  $4\frac{1}{2}$  inch blade. The motor is operated on two dry cells. It is fastened to a wooden base that is inserted in a slot in the upright and clamped tight by means of a winged nut. This fastening permits the fan to be tilted up and down while the single screw securing the fan to the base allows a left and right rotation. The air current may thus be directed on any spot desired.

### *Operation*

For microscope illumination with this dark room a concentrated filament mazda frosted globe is used. This globe is placed behind the slit in the central curtain and the microscope is put in position on the opposite side. The flap covering the slit is then snapped about the tube of the microscope just above the nose piece. The slit through which the light comes is so narrow that the stage of the microscope effectively shields the eye from the light coming through the lower part of the slit while the flap takes care of all other dispersion.

In the average room having windows on only one wall the side curtains can be left wide apart. In places where the worker is almost surrounded by windows it is of advantage to draw the side curtains so close that there is just room for the observer's head to enter. The telescoping rods supporting the side curtains permit these to be narrowed or widened to suit the circumstances. The top curtain works to or from the microscopist and is frequently convenient in cutting out the light from the upper parts of the windows.

Light on the drawing paper is obtained by separating the lower portions of the central curtains from each other and fastening them back. The bulb illuminating the microscope then throws its light over the right hand side of the base. A constant intensity of illumination is in this way assured.

The fan is a luxury—possibly an unnecessary one, but in very warm weather or on days when a few flies persist in maintaining

their position at all hazards on top of the writer's head he has not been at all skeptical as to whether the luxury was unnecessary or not.

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#### NOTES ON A NEW SPECIES OF LOXODES (EHRBG.)?

In the course of work upon the distribution of fresh-water protozoa in the southeastern part of Massachusetts many species were found which could not be named according to the available classifications. This is true of various species of the genus *Loxodes*.

*Loxodes* belongs to the class of Infusoria and to the sub-class Ciliata; that is, the protozoon is provided with cilia or setæ during all of its stages, but is free of flagella. This sub-class is divided into a number of orders, *Loxodes* falling under the order of Holotricha. This order includes the ciliata which possess but one kind of cilia and show the anus and mouth conspicuously. The members of the genus *Loxodes* show a hook-like projection on the anterior end which is bent to the left, and cilia cover nearly the entire body. The body is flattened, slightly elongated and possesses a well defined outer envelope of the cell or ectoplasm which is constant in form. The dorsal surface is free from cilia, smoothed and curved. The ventral surface is flat and well ciliated, with a mouth on the left anterior edge which is at the bottom of a slit-like peristome. Some writers claim this leads into a pharynx, the existence of which I have not been able to see. The animal is a free swimmer and shows nuclei clearly.

The species under consideration has an average length of 60 microns and width of 16 microns. It is found in great numbers among *Oscillaria*, associated with *Nassula*, *Paramecium* and rotifers. There was no evidence of its feeding upon the algæ. Its food consisted principally of small paramecia.

They may be narcotized for study by a .47% solution of cocaine hydrochloride; though after about two minutes the animal slowly assumes an oval shape, then becomes round and all evidence of life ceases. The action of the narcotic was not so pronounced up-